

We Claim:

1. A wireless telecommunications device comprising:

a first antenna element for transmitting and receiving a first wireless telecommunications signal;

a second antenna element for transmitting and receiving a second wireless telecommunications signal;

a radio transceiver for generating the first and second wireless telecommunications signals, wherein the radio transceiver is configured for generating the first and second wireless telecommunications signals on a substantially predetermined wireless band in such a way as to produce phase cancellation of the first and second signals along a predetermined boundary.

2. The wireless telecommunications device of claim 1 wherein the radio transceiver is configured for generating the first and second wireless telecommunications signals on substantially the same wireless band but substantially 180 degrees out of phase.

3. The wireless telecommunications device of claim 1 wherein the predetermined boundary of phase cancellation of the first and second signals is the symmetry plane between the first and second antenna elements.

4. The wireless telecommunications device of claim 3 further comprising at least one additional antenna element, located in the symmetry plane between the first and second antenna elements, for transmitting and receiving a respective wireless telecommunications signal on a substantially predetermined wireless band different from the wireless band of the first and second antenna elements.

5. The wireless telecommunications device of claim 1 wherein the first and second antenna elements are a first pair of antenna elements, operating substantially on a first predetermined wireless band, and wherein the first pair of antenna elements is one of a plurality of pairs of antenna elements.

6. The wireless telecommunications device of claim 5 wherein each of the respective pairs of antenna elements are adapted to operate over a respective plurality of predetermined wireless bands in such a way as to produce phase cancellation of the respective signals along a respective predetermined boundary.

7. The wireless telecommunications device of claim 5 wherein each of the respective pairs of antenna elements are configured so that as one of the respective pairs of antenna elements are transmitting a wireless signal, at least one of the respective other pairs is receiving a wireless signal.

8. The wireless telecommunications device of claim 5 wherein the plurality of predetermined wireless bands are wireless frequency sub-bands selected from 2.4 GHz and 5 GHz wireless bands.

9. The wireless telecommunications device of claim 1 wherein the radio transceiver comprises a radio circuit for generating the first and second wireless telecommunications signals and a phase shifter to produce a phase shift in one of the first and second wireless telecommunications signals so as to produce phase cancellation of the first and second signals along a predetermined boundary.

10. The wireless telecommunications device of claim 1 wherein the wireless telecommunications device is a wireless access point for a wireless local area network, wherein the wireless access point is in communication with a plurality of wireless mobile clients.

11. A multi-channel wireless telecommunications device comprising:

a first pair of antenna elements, for transmitting and receiving a first pair of wireless telecommunications signals over a first predetermined wireless band;

a second pair of antenna elements, for transmitting and receiving a second pair of wireless telecommunications signals over a second predetermined wireless band;

a radio transceiver for generating the respective first and second pairs of wireless telecommunications signals, wherein the radio transceiver is configured for generating the respective pairs of wireless telecommunications signals in such a way as to produce phase cancellation along respective predetermined boundaries.

12. The multi-channel wireless telecommunications device of claim 11 wherein the radio transceiver is configured for generating the respective pairs of wireless telecommunications signals on substantially the same respective wireless bands but substantially 180 degrees out of phase.

13. The multi-channel wireless telecommunications device of claim 11 wherein the predetermined boundaries of phase cancellation of the respective pairs of signals are the symmetry planes between the respective pairs of antenna elements.

14. The multi-channel wireless telecommunications device of claim 11 wherein the first and second predetermined wireless bands are wireless frequency sub-bands selected from 2.4 GHz and 5 GHz wireless bands.

15. The multi-channel wireless telecommunications device of claim 11 wherein the radio transceiver comprises a radio circuit for generating the first and second pairs of wireless

telecommunications signals and a phase shifter to produce a phase shift in one of each of signals in the first and second pairs of wireless telecommunications signals so as to produce phase cancellation the predetermined boundaries.

16. The multi-channel wireless telecommunications device of claim 11 wherein the wireless telecommunications device is a multi-channel wireless access point for a wireless local area network, wherein the multi-channel wireless access point is in communication with a plurality of wireless mobile clients.

17. The multi-channel wireless telecommunications device of claim 11 wherein the first and second pairs of antenna elements are ones of a respective plurality of pairs of antenna elements, for transmitting and receiving respective pairs of wireless telecommunications signals over respective predetermined wireless bands.

18. The multi-channel wireless telecommunications device of claim 11 wherein the first and second pairs of antenna elements are configured so that as one of the first and second pairs of antenna elements are transmitting a wireless signal, the respective other the first and second pairs is receiving a wireless signal.

19. The multi-channel wireless telecommunications device of claim 11 further comprising at least one additional antenna element, located at a junction of the symmetry planes of the respective first and second pairs of antenna elements, for transmitting and receiving a respective wireless telecommunications signal on a substantially predetermined wireless band different from the wireless bands of the first and second pairs of antenna elements.